announce Mr. Hurlbert's book, 'Ireland under Coercion,' which has created so much discussion in Great Britain. —— Thomas Whittaker is about to publish a library edition of Pascal's 'Thoughts,' from the text of Molinier, by C. Kegan Paul. He also begins a new series of illustrated books under the title of 'Whittaker's Home Library.' The first three volumes will be 'Romance of Animal Life,' by J. G. Wood; 'Leaders Upward and Onward,' by H. C. Ewart; and 'Round the Globe,' by W. C. Proctor. —— Robert Clarke & Co. have in press a book by Joseph S. Tunison, of the New York *Tribune's* editorial staff, to be entitled 'Master Vergil: a Series of Studies upon the Mediæval Reputation of the Author of the Æneid.' 'Vergil and the Devil,' 'Vergil in Literary Tradition,' 'Vergil's Book of Magic,' 'Vergil the Man of Science,' 'Vergil the Saviour of Rome,' 'Vergil the Lover,' 'Vergil the Prophet,' and 'Vergil in Later Literature,' are the chapter headings, and give a fair idea of the contents and character of the book. —— Henry Willey, New Bedford, Mass., has just published 'A Synopsis of the North American Lichens, Part II.,' by the late Edward Tuckerman, comprising the *Lecideacei* and (in part) the *Graphidacei*. The work, which was left unfinished at the time of the author's death, has been completed by Mr. Willey, who has also added other lichens from Professor Tuckerman's various works. Students of this interesting and difficult branch of botanical science have now for the first time a handy manual by two of its foremost exponents. Edwin Nelson, Amherst, Mass., will supply the book to the trade. —— D. C. Heath & Co. have begun the publication of a series of leaflets for the guidance of students of English literature of the nineteenth century, prepared by Louise Manning Hodgkins, professor of English literature at Wellesley College. The following English and American authors will be included: Scott, Lamb, Wordsworth, Coleridge, Byron, Shelley, Keats, Macaulay, Dickens, Thackeray, Robert Browning, Mrs. Browning, Carlyle, George Eliot, Tennyson, Rossetti, Irving, Bryant, Hawthorne, Longfellow, Emerson, Whittier, Holmes, and Lowell. The Tennyson, George Eliot, Hawthorne, and Longfellow papers are now ready. —— Cassell & Co. announce a work entitled 'The Truth about Russia,' by W. T. Stead, editor of the *Pall Mall Gazette*, who does not, it is said, share the traditional British attitude of suspicion toward the empire of the north. —— Ginn & Co. will publish in December, in the College Series of Latin Authors (edited under the supervision of Clement L. Smith and Tracy Peck), 'Cicero's Brutus,' edited by Martin Kellogg, professor of Latin in the University of California. In the 'Brutus,' which was composed in 46 B.C., and purports to be a conversation with Atticus and Brutus, Cicero traces the development of oratory among the Romans down to his own time, with critical notices of about two hundred speakers. The long catalogue is relieved of dryness by the dialogue form, the freedom of digression, and by Cicero's fresh and teeming style. Professor Kellogg has edited the work especially for early college-reading. —— J. B. Lippincott Company announce as in press 'The Writer's Hand-Book,' a general guide to the art of composition and style; 'An Elementary Treatise on Human Anatomy' (entirely new edition), by Joseph Leidy; 'A Cyclopædia of Diseases of Children and their Treatment, Medical and Surgical,' edited by J. M. Keating, M.D.; 'Paradoxes of a Philistine,' by William S. Walsh; 'History of the Celebration of the One Hundredth Anniversary of the Promulgation of the Constitution of the United States,' edited by Hampton L. Carson; 'The Clinical Diagnosis of Non-Surgical Diseases by Bacteriological, Chemical, and Microscopical Methods of Research,' by Dr. Rudolf von Jaksch, translated into English by Dr. Cagney. —— 'The Private Correspondence of Daniel O'Connell,' to be published in two volumes in October by Longmans, Green, & Co., consists chiefly of hitherto unpublished letters of the liberator, abundantly annotated, and connected by only sufficient narrative to explain their occasion. Although called private, O'Connell's letters, even those to his wife, are chiefly on public topics. There is a peculiar timeliness in the publication just now of this first-hand and personal account of the successful struggle for Catholic emancipation, and of the later ineffectual effort for the Repeal of the Union. —— In *Lippincott's* for November an article of particular interest is Mr. Edgar Saltus's 'Morality in Fiction.' Another article that will be eagerly perused is the 'Extracts from the Diary of John R. Thompson,' compiled by Elizabeth Stoddard. Thompson, a well-known Southern *littérateur*, was sent to London to edit the *Index* on behalf of the Confederacy, and he was thrown with men like Tennyson, Carlyle, Gladstone, Dickens, Thackeray, and many others, of whom he gives entertaining reminiscences and anecdotes. Lincoln L. Eyre's article on 'Corporate Suretyship' is interesting and valuable.

NOTES AND NEWS.

THE topographic work of the arid lands and irrigation survey has been completed at the United States Geological Survey in Washington, and all the parties to be employed this year are already in the field. The hydrographic branch involves some very difficult scientific problems, the solution of which may cause some delay. Among these are the discovery of a method that shall be more accurate than any now employed to measure the volume of water that passes through a river. This is probably among the simplest of the problems. Another is a means of ascertaining the amount of sediment a river carries, and a third is the invention of some method of determining the annual amount of evaporation from the surfaces of the proposed reservoirs.

— General Greely, in his annual report, says that the percentages of successful weather-predictions made by the signal office for the year were 78.4; wind, 75.5; temperature, 74.2; general average, 76.7. The number of cold-wave signals displayed was 1,743, of which 1,240, or 71.5 per cent, were verified.

— Dr. Theodore Gill, at the meeting of the Washington Biological Society last Saturday evening, read a paper on 'The Families of Fishes.' He said that in 1872, after eleven years' study of the subject, he published a list of the families of fishes numbering 244. Subsequent studies have increased this number to 300. Cuvier recognized only 30. At the same meeting Dr. Gill defended his use of the suffix 'idæ' to the Greek or Latin root to designate a family instead of 'atidæ,' the one used by naturalists for a century. He read letters from the most distinguished Greek and Latin scholars in the country, asserting that 'idæ' was grammatically the only proper form. The members of the society who discussed the subject were not convinced by Dr. Gill's arguments and authorities.

— 'Sexual Characteristics of the Lachnosternis' was the title of a paper read by Mr. J. B. Smith of the Department of Agriculture, before the Washington Biological Society at its meeting last Saturday evening. It described a study by the author, last summer, of the June-bug, about which, strange to say, entomologists before knew comparatively little. The study resulted in the identification, among the many thousands of specimens captured in the District of Columbia, of four strongly marked, well-defined species, the female as well as the male of each species being determined.

— In a pamphlet, 'Great-Circle Sailing,' published by Longmans, Green, & Co., Richard A. Proctor advocates the use of the stereographic polar projection for laying out the shortest sea-routes. As is well known, the gnomonic projection is used for finding the great circle between two points that are not too far distant from each other. As this projection, however, does not allow the representation of more than about one-third of the earth's surface, it is not suitable for finding the great circle between points that are far apart. Proctor uses the property of the stereographic projection, that each circle on the sphere is projected into a circle, which may be constructed on the map with great ease. Thus, by laying a circle through two points and one of their antipodes, the shortest route between the two points is found. A similar construction permits the finding of the shortest route which does not cross a certain degree of latitude beyond which navigation would be dangerous. Two maps of the earth are constructed, — one in south polar projection, the other in north polar projection, — and each is adapted to construct routes in one hemisphere.

— Prof. Dr. Paulsen of the University of Berlin, Germany, in a letter in regard to the Berlitz schools of languages, says, "The method of Mr. Berlitz appears to me, as far as I have had the opportunity of familiarizing myself with it by some lessons and the expedients applied, a process specially suited to lead the pupil rapidly, safely, and with comparatively little trouble to himself, —

'*tuto, cito, jucunde*,' in the words of old Comenius, — to the practical mastery of the modern languages. Its peculiarity consists essentially in introducing the foreign tongue as a living tongue, drilling it from the very beginning by ear and speech instead of teaching it by reading and writing, like a deaf-mute language. During the instruction the pupil hears and speaks only the language he is to learn. The effect of this is, first, that he is enabled to follow, without difficulty, even rapid conversation in the foreign tongue; and, second, that he thoroughly acquires the pronunciation as well as the various expressions used in forming an assertion, question, or command. Whether the method can be employed in the instruction of large public-school classes, I am not yet able to state. It appears to me, however, beyond doubt, that the method is specially adapted to advance rapidly adults who desire to study a modern language for practical application. But I am also inclined to believe, that its use, at least supplementary to the ordinary public-school course, is practicable even in large classes, provided the teacher himself can converse in the language to be taught. It would be apt, above all, to re-awaken the pupil's interest, so easily blunted by grammatical exercises and translations. Really the method is only the systematized form of learning a foreign language in a foreign country by its actual use."

LETTERS TO THE EDITOR.

"Take Heed!"

MAY I be allowed to draw attention to an expression that is now creeping into our text-books and journals? Every teacher of chemistry is aware that students, when endeavoring to describe experiments, prefix to almost every sentence the word 'take.' "*Take* a glass cylinder," replies the student, when asked to describe the method by which hydrogen is collected, "fill it with water, and invert it in a vessel filled with water. Then *take* a glass tube and put the end of it under the mouth of the cylinder. Then, when the cylinder is full, *take* a glass plate and put it on the end of the cylinder, and *take* it out of the water," etc.

The careful teacher would interrupt this laborious and involved description at the start by suggesting the more concise statement, "Invert a jar filled with water," etc. Indeed, it is quite remarkable how students, when drilled by good teachers, soon fall into the way of expressing their ideas concisely and accurately; but it is discouraging, in reading articles written by men of high standing, to find directions beginning, "Take a jar," "Take a tube." Time is short, life is short, and our sciences are getting to be endless. Let us therefore discourage all verbosity and inaccuracy, and encourage simplicity and terseness of expression. Let the teacher, when the student begins his ramble by saying, "Well, you take salt, manganese di-oxide, and strong sulphuric acid to which some water has been added," stop him gently but firmly with "I will *not!* I am willing to teach chemistry for a small salary, and to sacrifice myself in the interest of science, but I must draw the line somewhere, and I draw it here. I will *not* take salt, manganese di-oxide, and strong sulphuric acid to which some water has been added."

Let every one be on his guard against the ravages of this word.

PETER T. AUSTEN.

New Brunswick, N.J., Oct. 15.

Ants transplanting the Scale-Bug.

IN bringing in from outside the window the other day some pots of agave infested with scale-bug, I placed one of these near a box of plants. Next day I noticed some red ants engaged at something on the point of one of the leaves. On examining more closely, I found three ants bringing scale-bugs from off a dying leaf of an agave to the leaf of a plant which it barely touched. They incited the slow bugs to move along by touching them with their antennæ, and in the course of half a day they had transplanted several of the half-grown insects. I am pretty sure, from the circumstances, that they were doing this, and I hardly think the scale could have crossed alone, from the position of the leaves. I question if the scale gives up its honey by excitation, like the aphis. I am inclined to believe that they deposit the drops of beautifully clear, viscid honey at night. The ants do associate with the scale for the purpose of gathering this product, and have nests at the base of each plant suffering from scale.

The ants have been in my office for more than four years, and I have come to the conclusion, that, in my fight with the scale, they aid and abet the enemy.

There is one circumstance that reconciles me to the ants: they search out and destroy the larvæ of museum pests. A deer-skin coat infested with moth was thrown on the floor one day, and after a little while I noticed some ants crossing and burrowing in the hair in the most excited manner, and I also noticed some ants carrying away and devouring the plump, white moth-larvæ they had secured. I have seen them carrying the struggling 'millers' also.

WALTER HOUGH.

U. S. National Museum, Oct. 16.

Chest-Development.

I AM glad to say the practical experience of another year has completely confirmed the research I laid before the British Association at Birmingham and Manchester. The best type of chest has been easily obtained in young people; but anthropologists will, no doubt, be surprised to learn that a change in the same direction can with care be made in those of mature age. This I have seen in the diseased chest of a gentleman aged thirty-seven. Between the ages of twenty-five and thirty-three, similar results have been frequently noted. Here are facts that prove the direct power of the surroundings in making the different types of chest we meet with, and consequently we can now avoid those types that are known to be so injurious to the race by substituting for them that which we find at birth. No doubt, the proportion between the height and chest-girth that obtains at birth is a very high one; so much so, in fact, that it has been thought that I was acting unadvisedly in selecting it as the standard we ought to seek to attain. But it exists; and Mr. Brént's maximum chest-girth, obtained from a large number of actual measurements over forty years ago, closely agrees with it.

The method of treatment advocated in the paper on consumption has been successfully applied in six cases. One, whose chest-girth has increased about five inches, and whose vital capacity exceeds Hutchinson's so-called standard of health by seventy cubic inches, has passed medical examination for life-assurance; a second, whose chest-girth has increased nearly three inches, has been examined by a physician, who detected no signs of the previous disease; a third, whose vital capacity was eighty-five cubic inches, and now is two hundred and twenty cubic inches, has borne children, and continues well; and most satisfactory progress has been made in the others. To these we must add Sydenham's cures and the numerous recoveries by nature which were obtained by similar conditions. Hence the practical application of this method has completely confirmed the explanation I gave of the nature of the disease; and I have no doubt whatever that science has gained another victory in the conquest of a great enemy of civilized man.

G. W. HAMBLETON.

Dorchester Place, Blandford Square, London, Oct. 11.

Queries.

37. WHAT NUMBERS DOES IT TAKE TO MAKE A BILLION? — During colonial times, both in England and the Colonies, it took one million of millions to make a billion. During the first half of the present century, I think it may be affirmed that this notation had not been changed, and would have been held binding in law in the United States. It is certainly the most convenient for the astronomer, who has to deal with such enormous distances. The nearest of the twelve or fourteen fixed stars whose distances are approximately known to us require twenty, thirty, or forty English billions of miles to measure the space between the earth and them. The compilers of our modern American arithmetics, without any legislation on the subject, seem to have disregarded the old notation, and to have adopted the French method, of calling in numbers a thousand millions a billion. It is true that the French metric system has been legalized, but it does not make a kilometre an English mile.

E. T. MERRICK.

New Orleans, La., Oct. 13.